# GOLF PUTTER WITH ARTICULATING STRIKING FACE AND WITH HEEL-TO-TOE AND FRONT TO BACK WEIGHT DISTRIBUTION ADJUSTMENT TO VARY PUTTER BALANCE

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# GOLF PUTTER WITH ARTICULATING STRIKING FACE AND WITH HEEL-TO-TOE AND FRONT TO BACK WEIGHT DISTRIBUTION ADJUSTMENT TO VARY PUTTER BALANCE

This invention pertains to golf putters.

More particularly, the invention pertains to a golf putter that facilitates the adjustment of the heel-to-toe and front to back weight distribution of the putter.

In a further respect, the invention pertains to a golf putter that permits adjustment of the orientation of the striking face of the putter with respect to a golf ball when the ball is being addressed with and struck by the putter.

In another respect, the invention pertains to a golf putter that permits adjustment of putter balancing between a face-balanced configuration and a toe-weighted configuration.

Both the heel-to-toe weight and front to back weight distribution in the head of a golf putter and the orientation of the putter ball-striking face contribute to the

functioning of the putter. If the putter ball-striking face has a slight backward tilt (toward the putter shaft) or orientation, the face tends to lift the golf ball when the ball is struck. Providing a putter with a ball-striking face that has a backward tilt is described as "adding loft" to the putter. If the putter ball-striking face has a slight forward tilt (away from the putter shaft) orientation, the face tends to push the golf ball into the green when the ball is struck. Providing a putter with a ball-striking face that has a forward tilt is described as "delofting" the putter.

The head of each putter has a particular balance orientation. The balance orientation of a putter head is determined by finding a point on the shaft at which the shaft will assume a generally horizontal orientation when balanced on a fingertip. When the putter is so balanced on the fingertip of a golfer with the club shaft in a generally horizontal orientation, the putter head normally will assume one of the three basic putter head balance orientations.

The first putter head balance orientation is the face-balanced orientation. When the putter head is in the face-balance orientation, the striking face of the putter is horizontally oriented and faces upwardly toward the sky. In a face-balanced putter, the putter shaft location with respect to the head typically, but not always, points toward the center of the putter head.

The second putter head balance orientation is the toe-weighted orientation. When the putter head is in the toe-weighted orientation, the toe of the

putter hangs straight down, the heel of the putter points upwardly toward the sky, and the striking face of the putter is vertically oriented. In a toe-weighted putter, the shaft typically is attached to the head at the heel.

The third putter head balance orientation is the intermediate orientation. When the putter head is in the intermediate orientation, it is oriented in a position between the face-balanced orientation and the toe-weighted orientation. The striking face of the putter head is canted, and is neither horizontally or vertically oriented. When a putter head is in the face-balanced orientation, the ball striking face is said to be at an angle of zero degrees with respect to the horizontal. When a putter head is in the toe-weight orientation, the ball striking face of the putter is at an angle of ninety degrees with respect to the horizontal. When a putter head has an intermediate orientation, the ball striking face of the putter typically is at an angle of twenty to eighty degrees with respect to the horizontal.

One popular style of putting is indicated in Fig. 24 and is called the pendulum style. In Fig. 24, dashed line 180 indicates the line of travel of the golf ball after being struck by the ball striking face of a putter 210 at point 184. When pendulum style putting is use, the putter head travels along a straight line 181, 182, or 183 during the back stroke and follow through.

Another popular style of putting is indicated in Fig. 25 and is called the open-and-closed stroke. In Fig. 25, dashed line 185 indicates the line of travel of the

golf ball after being struck by the ball striking face of a putter 211 at point 188. When the open-and-closed stroke is used, the putter head travels along a curved path 186, 187, 189, and opens on the back stroke, squares up to the ball at the contact point 188, and closes on the follow through. The severity of the arc in the curved path varies according to the golfer.

It is generally agreed that a putter with a head that has a face-balanced orientation facilitates a pendulum style putting stroke, and that a putter with a head that has an intermediate orientation or toe-weighted orientation facilitates the open-and-closed putter stroke. One problem associated with the different putting styles and with putter heads having balance orientations is that golfers often elect to tinker with their putting stroke, their putters, or the line along which the putter head travels. This necessitates purchasing new putter or having putter mechanically adjusted to alter the putter head balance orientation. For example, on the PGA tour, players often elect to have their putters mechanically adjusted to alter the putter head balance orientation, the orientation of the face of the putter, the "feel" of the putter, etc.

Accordingly, it would be highly desirable to provide a golf putter that allows a golfer to adjust readily both the heel-to-toe weight distribution and the top-to-bottom cant or loft of the putter face, and to adjust the putter head balance orientation.

Therefore, it is a principal object of the invention to provide an improved golf putter.

A further object of the invention is to provide an improved golf putter that permits the weight distribution of the putter head to be adjusted by altering the location at which the club shaft is connected to the putter head.

Another object of the invention is to provide an improved golf putter that permits the weight distribution of the putter head to be altered by symmetrically adjusting the relative position of opposing putter structural components.

Still a further object of the invention is to provide an improved golf putter having an articulating ball-striking face.

Still another object of the invention is to provide an improved golf putter that permits the position of structural putter head components to be adjusted simultaneously or independently of the location at which the proximate end of the putter shaft is connected to the putter head.

Yet another object of the invention is to provide an improved golf putter that permits, without altering the location of the center of gravity of the putter head, the location on the putter head at which the proximate end of the club shaft is attached to be adjusted.

Yet a further object of the invention is to provide an improved golf putter that permits adjustment of the magnitude of the torque acting on the heel and toe of

the putter head.

Yet still another object of the invention is to provide an improved golf putter that permits the weight distribution of the putter head to be altered by adjusting putter structural components that counterpoise one another.

These and other, further and more specific objects and advantages of the invention will be apparent to those skilled in the art from the following detailed description thereof, taken in conjunction with the drawings, in which:

Fig. 1 is a perspective view top illustrating the head of a golf putter constructed in accordance with the principles of the invention;

Fig. 2 is a perspective top front exploded view illustrating the putter head of Fig. 1;

Fig. 3 is a perspective exploded top rear perspective view of the putter head of Fig. 1 illustrating further construction details thereof;

Fig. 4 is a perspective exploded top front view of the putter head of Fig. 3 illustrating particular components thereof;

Fig. 5 is a perspective view illustrating a linkage system used to adjust

the position of the putter wings;

Fig. 6 is a top front perspective view of the putter of Fig. 14 illustrating construction details of the adjustable pivoting striking face of the putter;

Fig. 7 is a perspective view illustrating a linkage system utilized to adjust the position of the putter wing portions;

Fig. 8 is a top view illustrating the golf putter of Fig. 1;

Fig. 9 is a front view of the golf putter of Fig. 8 illustrating the ball-striking face thereof;

Fig. 10 is a side view illustrating the golf putter of Fig. 8;

Fig. 11 is an enlarged side view of the golf putter of Fig. 1 illustrating the articulating ball-striking face thereof;

Fig. 12 is a section view of the golf putter of Fig. 8 taken along section line B-B and illustrating other construction details thereof;

Fig. 13 is a section view of the golf putter of Fig. 12 taken along section line C-C and illustrating additional construction details thereof;

Fig. 14 is a top rear perspective view illustrating a golf putter constructed in accordance with another embodiment of the invention;

Fig. 15 is a top front perspective view further illustrating the golf putter of Fig. 14;

Fig. 16 is a bottom perspective view illustrating the golf putter of Fig. 14;

Fig. 17 is a top perspective view illustrating the golf putter of Fig. 14;

Fig. 18 is a side view illustrating the golf putter of Fig. 14;

Fig. 19 is a top rear perspective view illustrating the golf putter of Fig. 14 after the wing portions have been inwardly symmetrically displaced to alter the heel-to-toe weight distribution of the putter head;

Fig. 20 is a top front perspective view illustrating the golf putter of Fig. 19;

Fig. 21 is a bottom rear perspective view illustrating the golf putter of Fig. 19;

Fig. 22 is a top view illustrating the golf putter of Fig. 19; and,

Fig. 23 is a perspective view illustrating components of the linkage system used to laterally adjust the position of the counterpoises to alter the heel-to-toe weight distribution of the putter head and lock down the putter components; and

Figs. 24 and 25 illustrate putting styles.

Briefly, in accordance with the invention, I provide an improved golf putter. The putter includes a head; and, a shaft including a proximate end attached to the head and a distal end. The distal end includes a grip. The head includes a forward portion including a face for striking a golf ball; and, a wing portion extending rearwardly from the forward portion and movable between at least two operative positions, a first operative position, and a second operative position laterally displaced along the forward portion in a direction outwardly away from the proximate end of the shaft to alter the heel-to-toe weight distribution of the putter.

In another embodiment of the invention, I provide an improved golf putter. The putter includes a head. The head includes a forward portion including a face for striking a golf ball; and, a wing portion extending rearwardly from the forward portion and movable between at least two operative positions, a first operative position, and a second operative position laterally displaced along the forward portion to alter the heel-to-toe weight distribution of the putter. The putter also includes a shaft including a proximate end attached to the wing portion, and a distal end. The distal end includes a grip.

In still another embodiment of the invention, I provide a golf putter including a head; and, a shaft. The shaft has a proximate end attached to the head and has a distal end. The distal end includes a grip. The proximate end is movable between at least two operative positions on the head.

Turning now to the drawings, which depict the presently preferred embodiments of the invention for the purpose of illustrating the practice thereof and not by way of limitation of the scope of the invention and in which like reference characters refer to corresponding elements throughout the several views, Figs. 1 to 13 illustrate one embodiment of the golf putter of invention, generally indicated by reference character 10. Putter 10 includes a head and a shaft 21. Shaft 21 includes a proximate end 22 connected to the head and includes a distal end 70 (Fig. 9). Distal end 70 functions as a handle for the golfer to manually grasp the putter shaft. It is understood that the shape and dimension of shaft 21 can vary as desired. For example, shaft 21 can take on a shape and dimension comparable to conventional heel-shafted putters, or, can take on a shape and dimension comparable to handles found on pendulum type center-shafted golf putters. Shaft 21 can be moved on the putter head to the heel in the manner of a conventional heel-shafted putter. Or, shaft 21 can be moved to a location on the putter head comparable to the used in pendulum type center-shafted golf putters.

The head of the putter includes a front portion 16, a back portion 13, neck 12, and a pair of wing portions 14 and 15. Wing 15 includes plate 15A. Wing 14

includes plate 14A. Front portion 16 includes ball striking face 17, and, includes component 38 and component 39. Face 17 is part of component 39. Component 39 is mounted on component 38 such that component 39--and face 17--can be pivoted or moved about a horizontal axis to change the cant or loft of face 17 from top-to-bottom. Neck 12 fixedly interconnects front portion 16 and rear portion 13 such that wing portions 14 and 15 can be laterally adjusted in the direction of arrows A and B, respectively, to alter the toe-to-heel weight distribution in the head of the putter, to alter the location of proximate end 22 with respect to the center of gravity Y (Figs. 1 and 8) of the putter head, and to alter the putter head balance orientation. The center of gravity of the head of the putter 10 generally does not change when the positions of wing portions 14 and 15 are adjusted because portions 14 and 15 each simultaneously move equal distances toward or away from neck 12. The center of gravity Y can change if the putter head is designed such that portion 14 moves a different distance than portion 15 toward or away from neck 12, or, if the position of only portion 14 (or only portion 15) is adjusted. Moving proximate end 22 inwardly from the position shown in Fig. 1 toward neck 12 also reduces the magnitude of the torque T (Figs. 1 and 9) acting on the toe of the club with respect to proximate end 22, i.e., moving proximate end 22 inwardly toward neck 12 causes less rotational force to be acting on proximate end 22. As used herein, the toe of a putter is the portion of the putter head that is farthest from a golfer when the golfer is addressing and putting a ball. The heel of a putter is the portion of the putter head that is closest to the golfer when the golfer is addressing and putting a ball. The putter head includes a linkage system that is not visible in Fig. 1 but that will be described below in more detail. The linkage system

enables end 19 of key 18 to be inserted in an opening 20 (Fig. 3) in back portion 13 to engage the head or end 50 (Fig. 5) of a control shaft 28 (Figs. 3, 5, 6) in the linkage system. When key 18 is then turned in the direction of arrow C, the control shaft 28 rotates simultaneously with key 18 and the linkage system simultaneously displaces wing portions 14 and 15 in the direction of arrows A and B, respectively, toward the stowed positions shown in Fig. 8. After wing portions 14 and 15 are displaced in the directions of arrows A and B from the distended positions shown in Fig. 1 to the stowed positions if Fig. 8 (or are displaced to a position intermediate the distended and stowed positions), wing portions 14 and 15 can be returned to the distended positions of Fig. 1 by rotating key 18 (and control shaft 28) in a direction opposite that of the direction indicated by arrow C.

Component 39 includes at least one shaft or screw 42 that is rotatably received by an oval aperture 43 formed in component 38. Arcuate convex surface 45 conforms to and is slidably adjusted over arcuate concave surface 44 in component 38 to adjust the cant of striking face 17 of component 38.

Figs. 2 and 3 illustrate the various components of putter 10 in more detail. When the putter head is assembled, plates 40 and 41 cover and conceal openings formed in component 38 and in back portion 13, respectively.

As earlier noted, the linkage system in the putter head includes control shaft 28. Shaft 28 includes a roller 29 at one end and a roller 30 at its other end. As

is illustrated in Fig. 7, roller 29 contacts arms 26 and 27. Pin 25 connects arms 27 to wing 15. Wing 14 (not shown in Fig. 7) is connected to arm 26 by pin 34. In like fashion, roller 30 on the other end of control shaft 28 contacts arms 31 and 32. The distal end of arm 31 is connected to wing portion 14 by pin 33. The distal end of arm 32 is connected to wing portion 15 by pin 24. When wing portions 14 and 15 are each in the distended position in Fig. 1, turning control shaft 28 in the direction of arrow C with key 18 displaces arms 27 and 32 in the direction of arrow J, and displaces arms 26 and 31 in the direction of arrow K. Such displacement of arms 26, 27, 31, 32 draws wing portions 14 and 15 inwardly in the direction of arrows A and B, respectively, toward the stowed position of Fig. 8. Key 18 and shaft 28 can be turned an amount sufficient to draw wing portions 14 and 15 inwardly until they contact neck 12. Or, key 18 can be turned an amount sufficient to draw wing portions 14 and 15 inwardly in the directions of arrows A and B, respectively, but not to draws wing portions 14 and 15 inwardly in the directions of arrows A and B a distance sufficient for portions 14 and 15 to contact neck 12 in the stowed position of Fig. 8. As is illustrated in Fig. 7, weight 14C is slidably mounted on shaft 14D. Weight 14C is slidably moved along shaft 14D in the directions indicated by arrows M to selected positions along shaft 14D. If desired, weight 14C can include a set screw or other means to secure and release weight 14C from a position along shaft 14D. Weight 14C and shaft 14D are housed in opening 14E (Fig. 3) formed in wing 14. Weight 15C is slidably mounted on shaft 15D. Weight 15C is slidably moved along shaft 15D I the directions indicated by arrows N to selected positions along shaft 15D. If desired, weight 15C can include a set screw or other means to secure and release weight 15C from a position along shaft

15D. Weight 15C and shaft 15D are housed in an opening that is formed in wing 15 and this is comparable in shape and dimension to opening 14E.

The roller 29, 30--arm 26, 27, 31, 32 linkage system illustrated in Figs. 2, 3, 4, 5, and 7 can be modified by forming gear teeth on the rollers and arms to produce a rack and pinion type structure, in which case rollers 29, and 30 each would be a toothed gear and the arms would each include a horizontally oriented row of gear teeth that would engage toothed gears 29 and 30. Further, any desired linkage system can be used as long as the position of at least one wing 14, 15 can laterally adjusted in the manner described with respect to front portion 16 and face 17.

In Fig. 3, neck 12 includes an orthogonal member 35 that intercalates with U-shaped component 37 by fitting and being secured in U-shaped opening 36.

Fig. 11 illustrates articulating component 39 in more detail. Screw or pin 42 pivots in oval opening 53 in the manner indicated by arrows F to alter the angle E of ball-striking face 17 with respect to vertical axis E. Component 39 and face 17 articulate about a horizontally orientated axis in the manner indicated by arrow D so that the top-to-bottom cant of face 17 can be adjusted. Face 17 can, if desired, be adjusted to be vertical. The pointer emblem 52A engraved or otherwise formed on component 29 and the arcuate dot sequence 52 engraved or otherwise formed on component 38 enable a golfer to determine the particular setting or orientation of component 39 with respect to component 38 and with respect to vertical axis X. If

desired, degree markings can be utilized in place of or in addition to the dot sequence 52.

If desired, the putter 10 can be constructed such that only the position of wing portion 14 can be adjusted and wing portion 15 is maintained permanently in a selected fixed position (or vice-versa) with respect to front portion 16, back portion 13, and neck 12. The fixed position for wing portion 15 can be the position illustrated in Fig. 1 or can be any other desired position. If wing portion 15 (or 14) is in fixed position, neck 12 can, if desired, be eliminated from the putter head. The proximate end 22 of shaft 21 can, instead of being connected to wing portion 15, be attached to front portion 16, back portion 13, neck 12, or wing portion 14. Back portion 13 can, if desired, be omitted from the putter head when the putter head is constructed. If desired, when the putter head is constructed only a single wing portion 14 or 15 need be incorporated in the putter head design.

An alternate embodiment of the invention is illustrated in Figs. 14 to 23 and is generally identified by reference character 100. Putter 100 includes a head and a shaft 121. Shaft 121 includes a proximate end 122 connected to the head at aperture 123 and includes a distal end (not shown). The distal end functions as a handle for the golfer to manually grasp the putter shaft. The shape and dimension of shaft 121 can vary as desired.

The head of the putter 100 includes a front portion 116, a back portion

113, and a pair of wing portions 114 and 115. Front portion 116 includes ball striking face 117, and, includes component 138 and component 139. Face 117 is part of component 139. Component 139 is mounted on component 138 such that component 139--and face 117--can be pivoted or moved about a horizontal axis to change the top-to-bottom cant or loft of face 117. Wing portions 114 and 115 can be laterally adjusted in the direction of arrows H and G, respectively, to alter the toe-to-heel weight distribution in the head of the putter, to alter the location of proximate end 122 with respect to the center of gravity of the putter head, and to alter the putter head balance orientation. The center of gravity of the head of the putter 100 generally does not change when the positions of wing portions 114 and 115 are adjusted because portions 114 and 115 each are simultaneously moved equal distances inwardly or outwardly from the distended positions shown in Fig. 14. The center of gravity of the putter head can change if portion 114 is moved a different distance inwardly or outwardly than portion 115, or, if the position of only portion 114 (or only portion 115) is adjusted. Moving proximate end 122 inwardly from the position shown in Fig. 14 also reduces the magnitude of the torque T1 (Figs. 15 and 16) acting on the toe of the club with respect to proximate end 122, i.e., moving proximate end 122 inwardly (simultaneously with wing portion 114) from the distended position of wing 114 shown in Figs. 14 to 17 toward the stowed position of wing 114 shown in Fig. 19 to 22 causes less rotational force to be acting on proximate end 122.

When the putter 100 is used by a left handed golfer, a shaft 121 can be attached to peg 60 mounted in hosel 61.

The golf putter 100 is similar to putter 10. Putter 100 does not, however, include a neck comparable to the neck 12 of putter 10. The linkage system of putter 100 is illustrated in Fig. 23 and is different from the linkage system of putter 10. As described below, the linkage system of putter 100 enables each wing portion 114, 115 to be slidably adjusted manually by grasping and pushing or pulling the wing portion inwardly or outwardly, as the case may be.

In Fig. 23, the linkage system of putter 100 includes linkage system 150 and linkage system 160. System 150 is housed in orthogonal cavity or opening 76B formed in wing 114 (Fig. 14). System 160 is housed in orthogonal cavity or opening 77B formed in wing 114.

System 160 includes generally orthogonal foot 75 and weight 77 and includes rod 74. The end of rod 74 extending through foot 75 is externally thread and extends through an internally threaded opening formed through foot 75. Foot 75 slidably seats in orthogonal opening or cavity 63A formed in component 138 of the front portion 116 of putter 100. Foot 75 seat in opening 63A behind rod 63 such that foot 75 can, when wing 115 is in the position shown in Fig. 14, slide along opening 63A behind rod 63 in the direction indicated by arrow G (Figs. 19 and 23) until wing 115 is in the position shown in Fig. 19, and, such that foot 75 can, when wing 115 is in the position shown in Fig. 19, slide along opening 63 behind rod 63 in a direction opposite that indicated by arrow G until wing 115 returns to the position shown in Fig. 14. Wing 15 can also, as would be appreciated, slidably adjusted to any position intermediate the

the positions of wing 115 illustrated in Figs. 14 and 19.

Neck 74A of rod 74 extends through slot 62 (Fig. 16) such that end 73 of rod 74 is positioned "outside" of slot 62 in the manner shown in Figs. 14, 16, 19, 21, and so that weight 77 is positioned "inside" of slot 62 in the manner shown in Fig. 17.

Neck 71A of rod 71 extends through slot 62 (Fig. 16) such that end 70 of rod 71 is positioned "outside" of slot 62 in the manner shown in Figs. 14, 16 , 19 21 and such that weight 76 is positioned "inside" of slot 62 in the manner shown in Fig.14. Weight 77 can be slidably moved along rod 74 toward foot 75 in the direction of arrow 161 in Fig. 23 and be secured in a desired position on rod 74 by a set screw 77A. After weight 77 is slidably displaced in the direction of arrow 161 to a desired position on rod 74, weight 77 can, if desired, be slid along rod 74 in a direction 154 opposite that of arrow 161 back toward the position of weight 77 shown in Fig. 23. Consequently, weight 77 can be slid back and forth along rod 74 to a plurality of selected positions intermediate foot 75 and head 73 of rod 74.

Weight 76 can be slidably moved along rod 71 toward foot 72 in the direction of arrow 151 in Fig. 23 and be secured in a desired position on rod 74 by a set screw (not visible). After weight 76 is slidably displaced in the direction of arrow 151 to a desired position on rod 71, weight 76 can, if desired, be slid along rod 74 in a direction 153 opposite that of arrow 151 back toward the position of weight 77 shown in Fig. 23. Consequently, weight 76 can be slid back and forth along rod 71 and

detachably secured in a plurality of selected positions intermediate foot 72 and head 70 of rod 71.

As is illustrated in Fig. 19, wing portion 115 can be manually slid in the direction of arrow G from the position illustrated in Fig. 14 to the position shown in Fig. 19. Wing portion 114 can be manually slide from the position illustrated in Fig. 14 to the position shown in Fig. 19.

When end 73 is turned in the direction of arrow 162, the externally threaded end of rod 74 turns through internally threaded aperture 75A. This draws foot 75 against a back wall of a cavity that is hollowed out of component 138, presses washer 74B against back portion 113 and tightens or compresses wing 115 in position between back portion 113 and front portion 116. Turning end 73 in a direction opposite that of arrow 162 loosens foot 75, and permits wing 115 to be slid in the direction of arrow G and, after wing 115 is displaced inwardly from the position shown in Fig. 14, in a direction opposite that of arrow G. Front portion 116 includes components 139 and 138. Component 139 include ball striking face 117.

When end 70 is turned in the direction of arrow 152, the externally threaded end of rod 71 turns through internally threaded aperture 72A. This draws foot 72 against rod 63 and presses washer 71B against back portion 113 and tightens or compresses wing 114 in position between back portion 113 and front portion 116. Turning end 70 in a direction opposite that of arrow 152 loosens foot 72, and permits

wing 114 to be slid in the direction of arrow H (Fig. 19) and, after wing 114 is displaced inwardly from the position shown in Fig. 14, in a direction opposite that of arrow H. Front portion 116 includes components 139 and 138. Component 139 include ball striking face 117. The proximate end 122 of shaft 121 is fixedly inserted in hosel 123.

An important advantage of the putter illustrated in Figs. 14 to 23 (and of the putter illustrated in Figs. 1 to 13) is that it permits ready adjustment of the putter head balance orientation between the face-balanced orientation and the toe-weighted orientation.

When the putter head is in the configuration illustrated in Fig. 19, the putter head presently has a face-balanced orientation. In Fig. 19, weights 76 and 77 are in the position shown in Fig. 23.

When the putter head is in the configuration illustrated in Fig. 14, the putter head presently has an intermediate orientation in which the ball striking face of the putter head is in the range of twenty to eighty degrees from the horizontal. In Fig. 14, weights 76 and 77 are still in the position shown in Fig. 23 (i.e., next to front back portion 113). To increase the angle from the horizontal of the ball striking face 117 of the putter head, the position of weights 76 and/or 77 is adjusted along rods 71, 74 in the direction of arrows 151 and 161, respectively. When the weights 76, 77 are adjusted as far as possible along rods 71, 74 (and toward the front portion 116 of the putter head) the putter head will assume a toe-weight orientation. If the weights 76, 77

are adjusted in the direction of arrows 151, 161, respectively, only a part of their greatest possible distance of travel along rods 71, 74 in the direction of arrows 151, 161, then the putter head remains in a toe-weight orientation, but with the angle of striking face 117 from the horizontal being greater than eighty degrees.

As would be appreciated by those of skill in the art, it is possible to configure a putter such that only the adjustment of wings 114 and 115 would be required to move face 117 between a face-balanced orientation and toe-weighted orientation or any desired orientation therebetween.

The orientation, or cant or loft, of component 139 and face 117 is adjusted by loosening screws 190 and 191 (Fig. 16); by manually adjusting in the direction of arrows 192 and 193 the convex back surface 194 of component 139 over the opposing, conforming concave surface 195 of component 138 until component 139 reach the desired position; and, by tightening screws 190 and 191 to fix component 139 in position. Externally threaded screws 190 and 191 extend through vertically extending slots formed in component 138 and also extend into internally threaded cylindrical apertures formed in component 139.

Having set forth my invention in terms to enable those skilled in the art to understand and practice the invention and having set forth the presently preferred embodiments and uses thereof, I Claim: